

# **Theory Explanation and Research Methods**

**Professor Robin Matthews**

**Academy of National Economy under the President of the Russian Federation  
Moscow**

**Kingston Business School London**

**Lecture at**

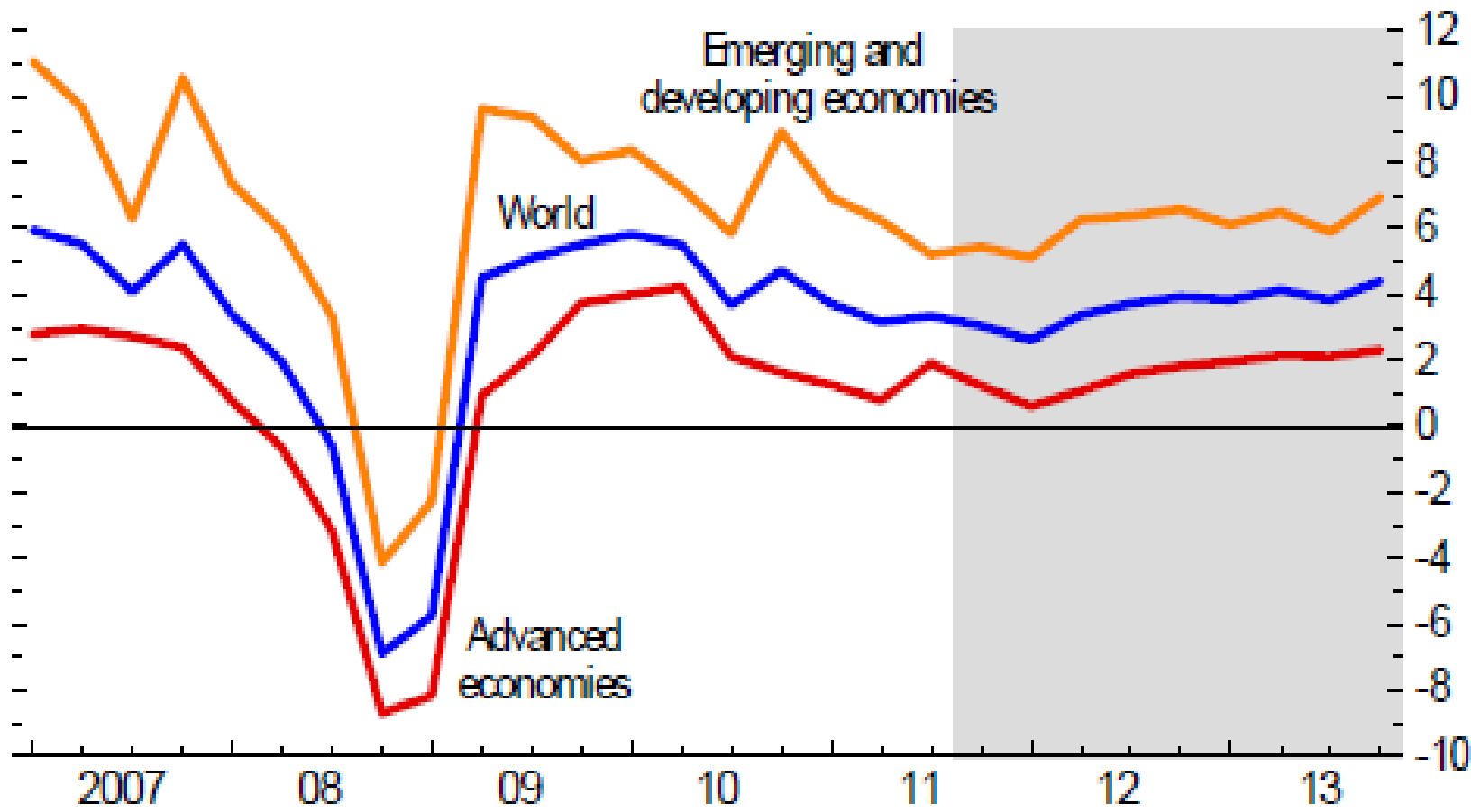
**London School of Commerce**

**November 2013**

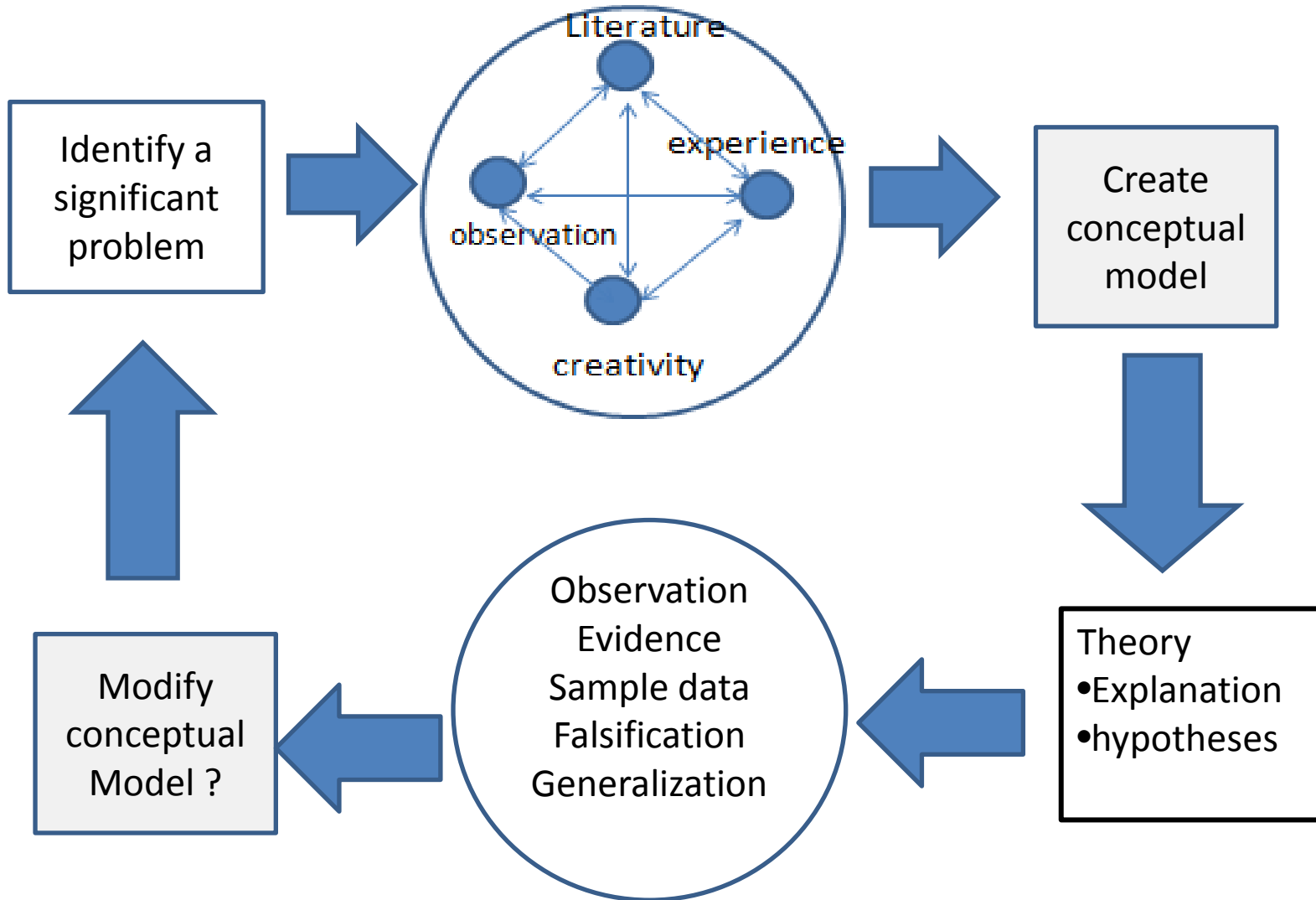
Scientific research;

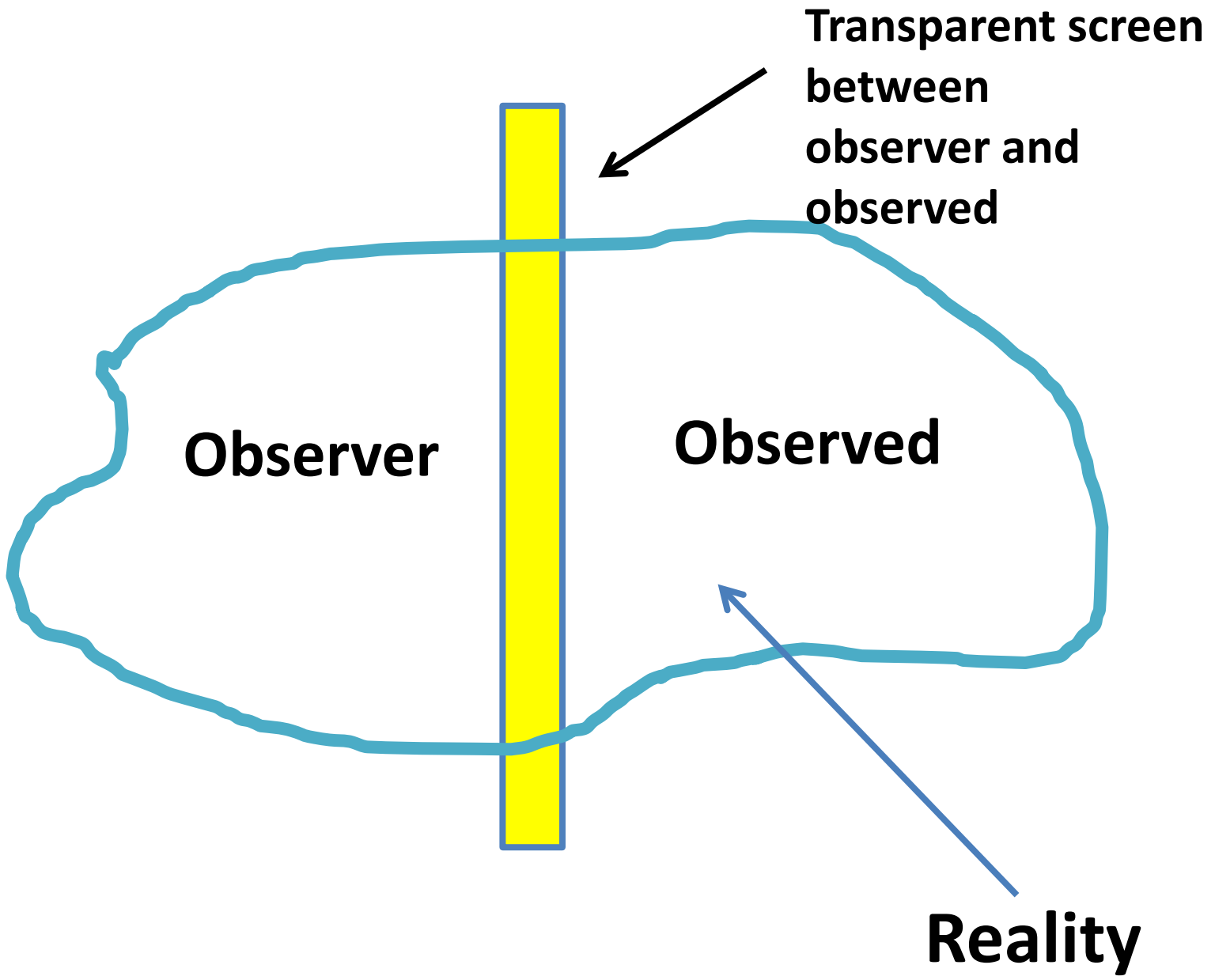
1. seeks answers to a question
2. uses a predefined set of procedures to answer the question
3. collects evidence
4. produces findings that were not determined in advance
5. produces findings that are applicable beyond the immediate boundaries of the study

.



Source: IMF staff estimates.



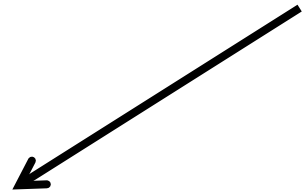


**Transparent screen  
between  
observer and  
observed**

**Observer**

**Observed**

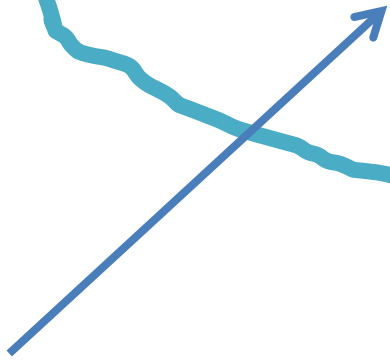
**Reality**



**NO** separation  
between observer and  
observed. Reality is  
the observer's  
perceptions of reality

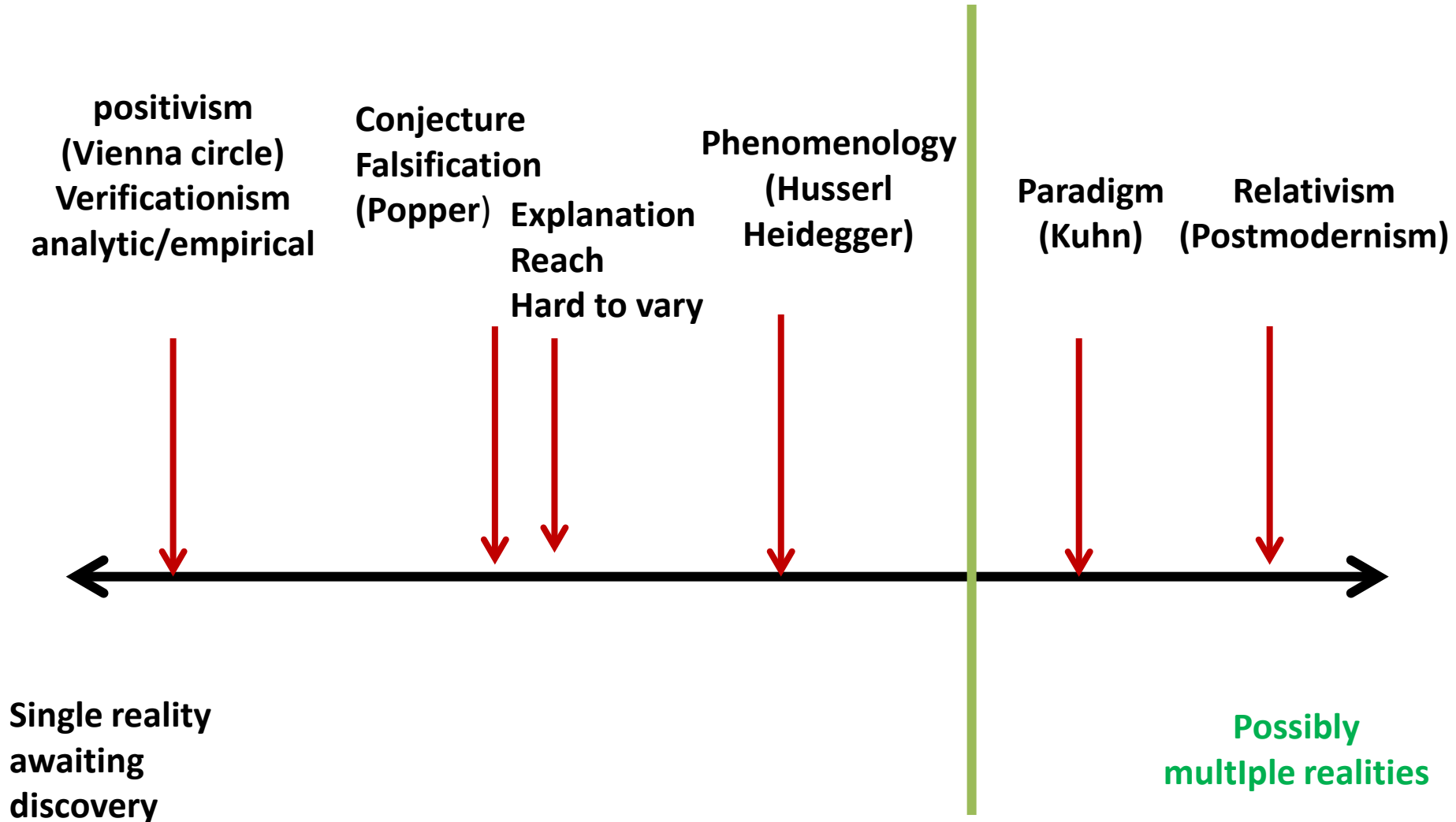


**Observer's perceptions**



**Reality**

# Scientific explanation: A very approximate scale



**Theories/hypotheses are  
probability statements**



**Source: for 3 slides on quantitative versus qualitative**

**[www.xavier.edu/library/help/qualitative\\_quantitative.pdf](http://www.xavier.edu/library/help/qualitative_quantitative.pdf)**

**who cite**

**JOHNSON, B., & CHRISTENSEN, L. (2008). *EDUCATIONAL RESEARCH: QUANTITATIVE, QUALITATIVE, AND MIXED APPROACHES* (P. 34). THOUSAND OAKS, CA: SAGE PUBLICATIONS.**

**LICHTMAN, M. (2006). *QUALITATIVE RESEARCH IN EDUCATION: A USER'S GUIDE* (PP. 7-8). THOUSAND OAKS, CA: SAGE PUBLICATIONS.**

<b>Criteria</b>	<b>Qualitative Research</b>	<b>Quantitative Research</b>
<b>Purpose</b>	To understand & interpret social interactions.	To test hypotheses, look at cause & effect, & make predictions.
<b>Group Studied</b>	Smaller & not randomly selected.	Larger & randomly selected.
<b>Variables</b>	Study of the whole, not variables.	Specific variables studied
<b>Type of Data Collected</b>	Words, images, or objects.	Numbers and statistics.
<b>Form of Data Collected</b>	Qualitative data such as open- ended responses, interviews, participant observations, field notes, & reflections.	Quantitative data based on precise measurements using structured & validated data-collection instruments.
<b>Type of Data Analysis</b>	Identify patterns, features, themes.	Identify statistical relationships.
<b>Objectivity and Subjectivity</b>	Subjectivity is expected.	Objectivity is critical.
<b>Role of Researcher</b>	Researcher & their biases may be known to participants in the study, & participant characteristics may be known to the researcher.	Researcher & their biases are not known to participants in the study, & participant characteristics are deliberately hidden from the researcher (double blind studies).
<b>Results</b>	Particular or specialized findings that is less generalizable.	Generalizable findings that can be applied to other populations.
<b>Scientific Method</b>	Exploratory or bottom-up: the researcher generates a new hypothesis and theory from the data collected.	Confirmatory or top-down: the researcher tests the hypothesis and theory with the data.
<b>View of Human Behavior</b>	Dynamic, situational, social, & personal.	Regular & predictable.
<b>Most Common Research Objectives</b>	Explore, discover, & construct.	Describe, explain, & predict.
<b>Focus</b>	Wide-angle lens; examines the breadth & depth of phenomena.	Narrow-angle lens; tests a specific hypotheses.
<b>Nature of Observation</b>	Study behavior in a natural environment.	Study behavior under controlled conditions; isolate causal effects.
<b>Nature of Reality</b>	Multiple realities; subjective.	Single reality; objective.
<b>Final Report</b>	Narrative report with contextual description & direct quotations from research participants.	Statistical report with correlations, comparisons of means, & statistical significance of findings.

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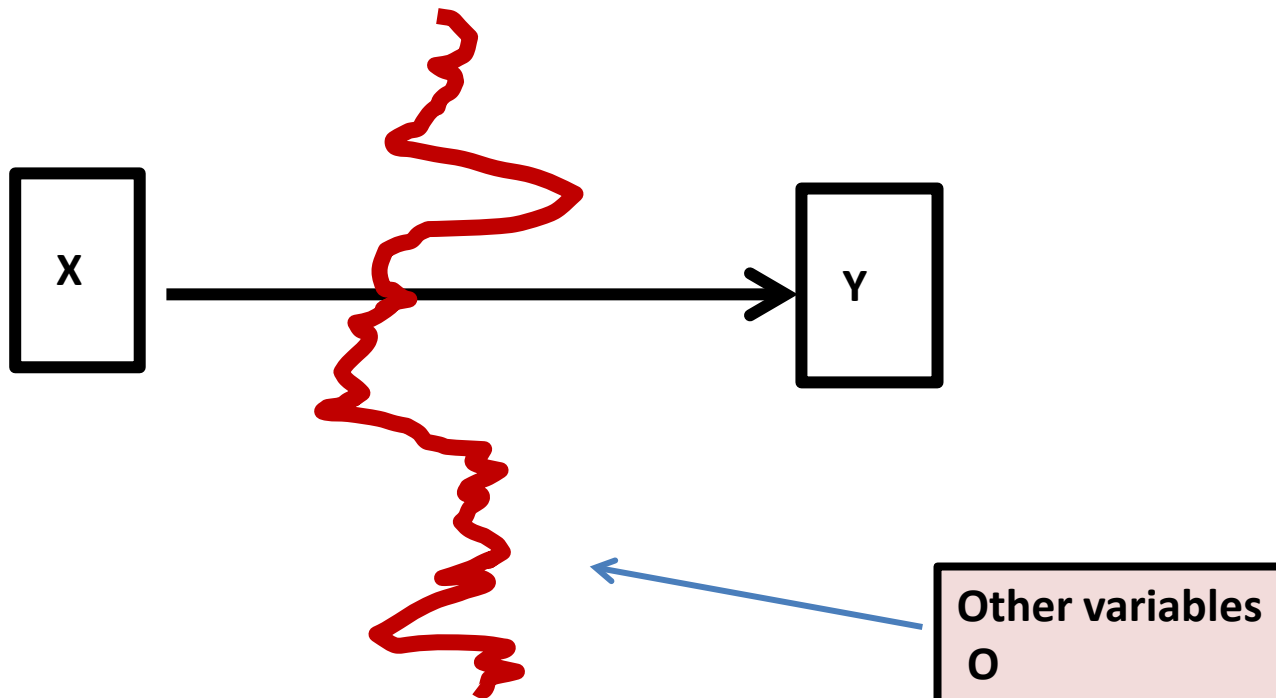
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# CAUSALITY



# CAUSALITY

Interference  
of the relation of  
X to Y



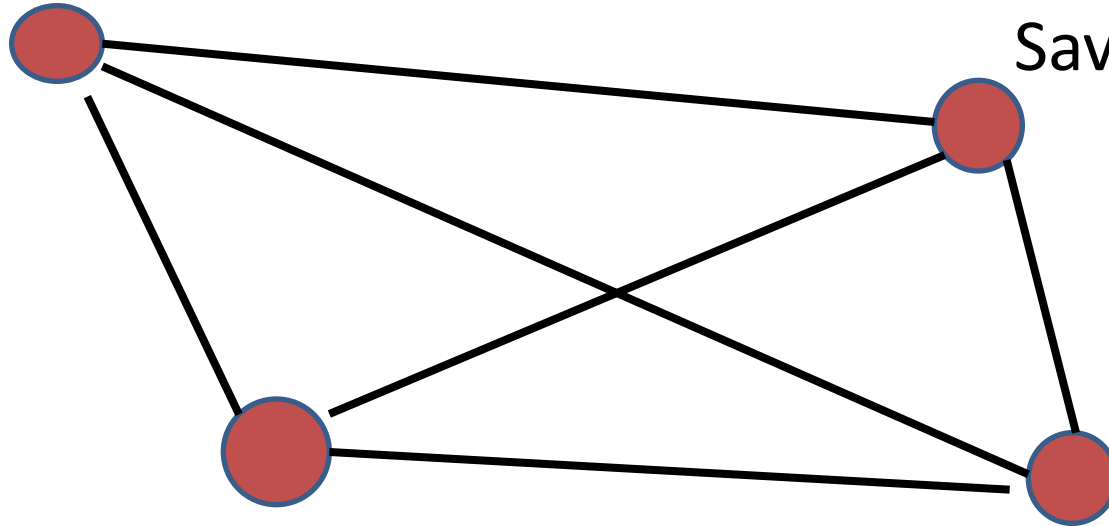
Variables other than X  
that effect Y

# interdependence

THE GREAT RECESSION 2008 -

Low interest rates

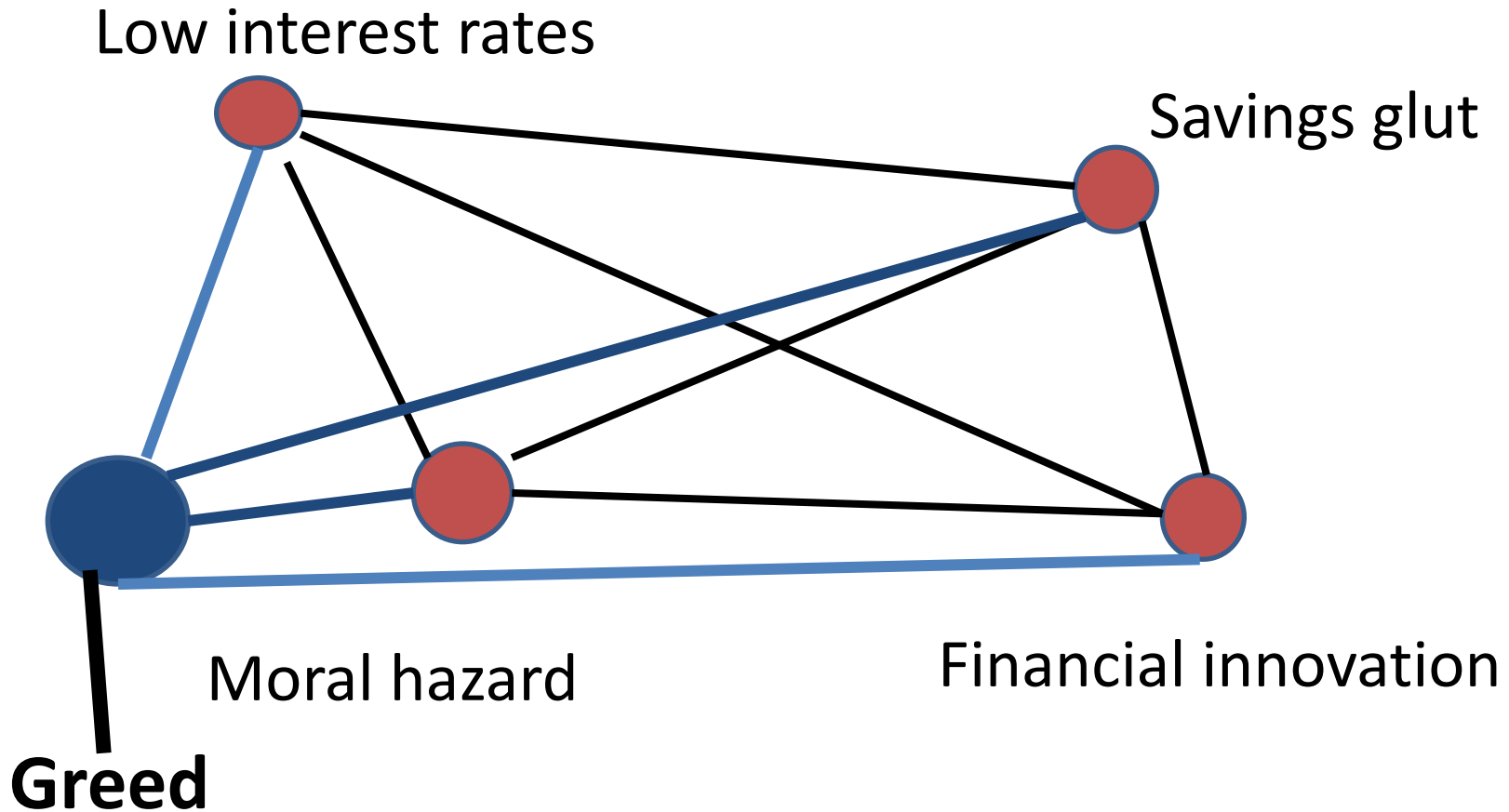
Savings glut



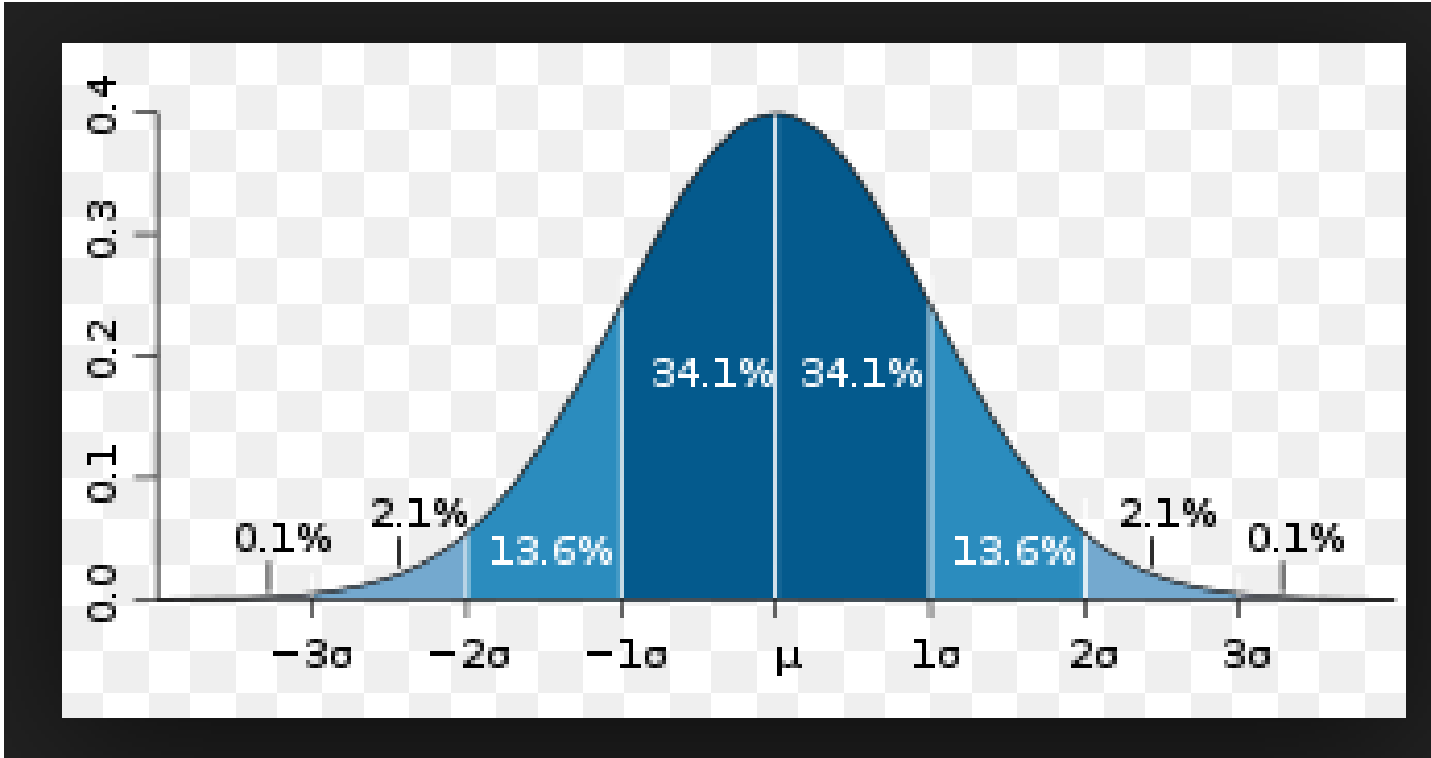
Moral hazard

Financial innovation

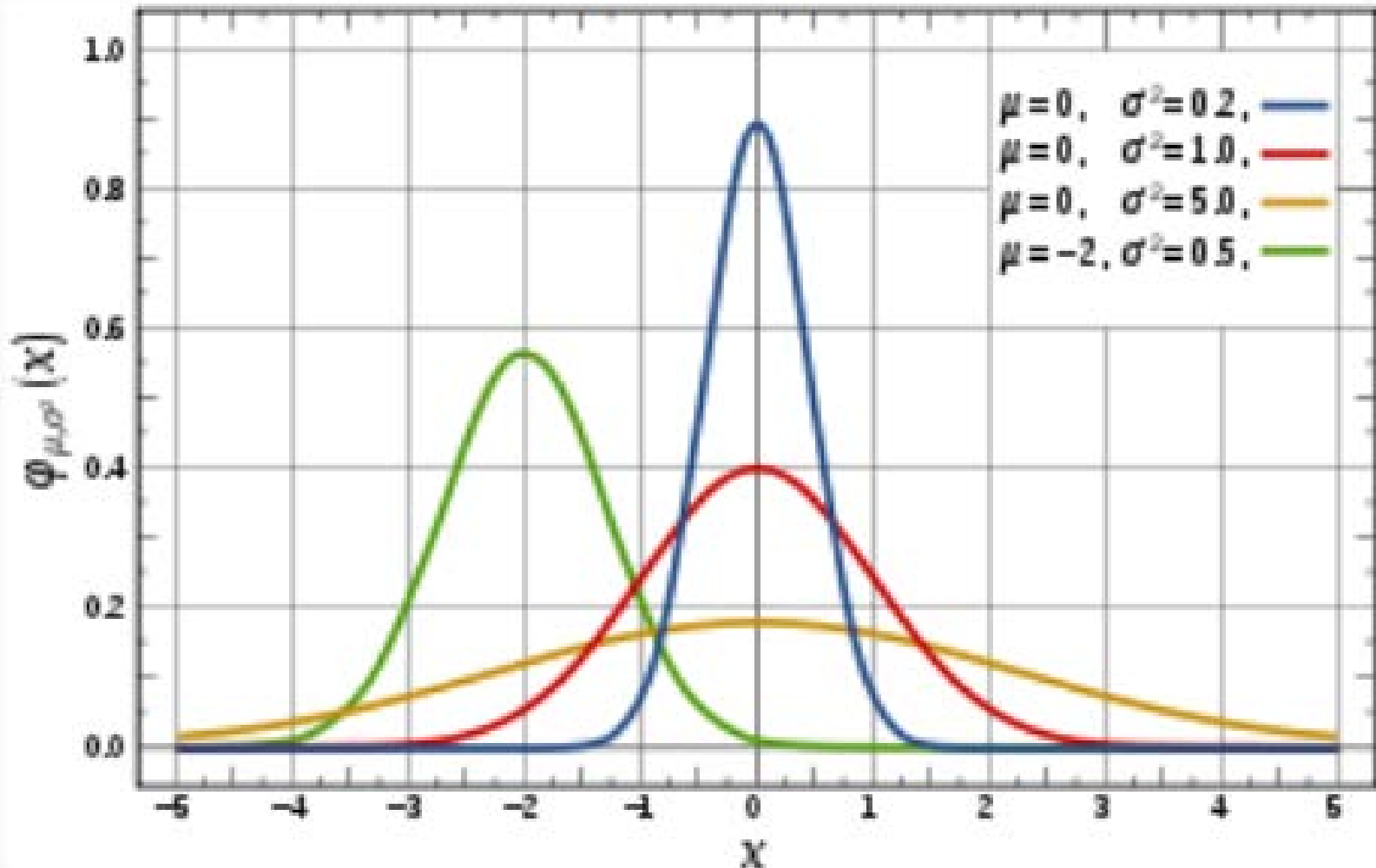
# interdependence







# Probability density function



The red line is the standard normal distribution

### Normal distributions

**68%**  
of  
observations

within **1 standard deviation** of the mean,  
 $\mu - \sigma$  and  $\mu + \sigma$ .

**95%**  
of  
observations

**2 standard deviations** of the mean,  
 $\mu - 2\sigma$  and  $\mu + 2\sigma$ .

**99.7%**  
of  
observations

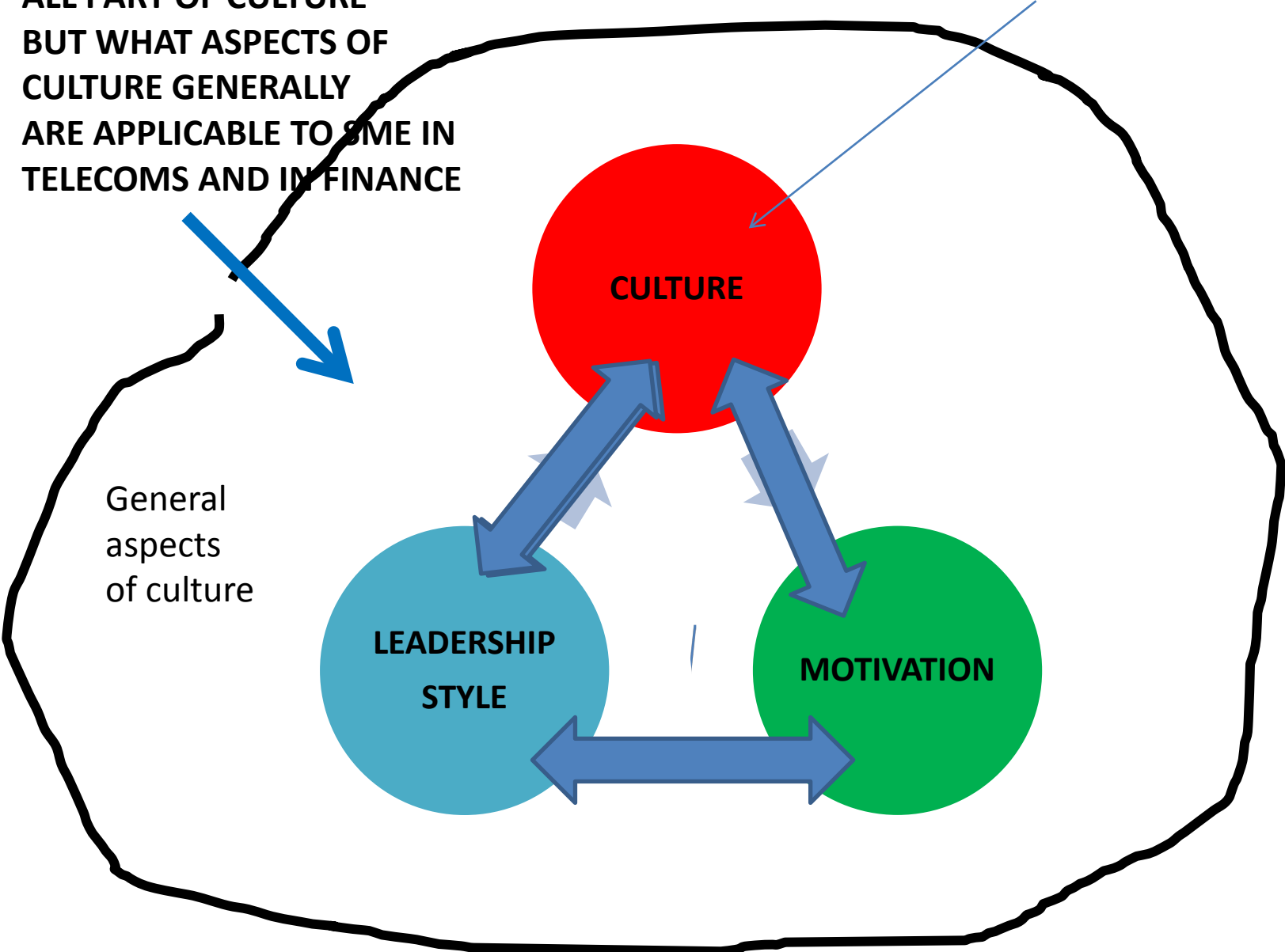
**3 standard deviations** of the mean,  
 $\mu - 3\sigma$  and  $\mu + 3\sigma$ .

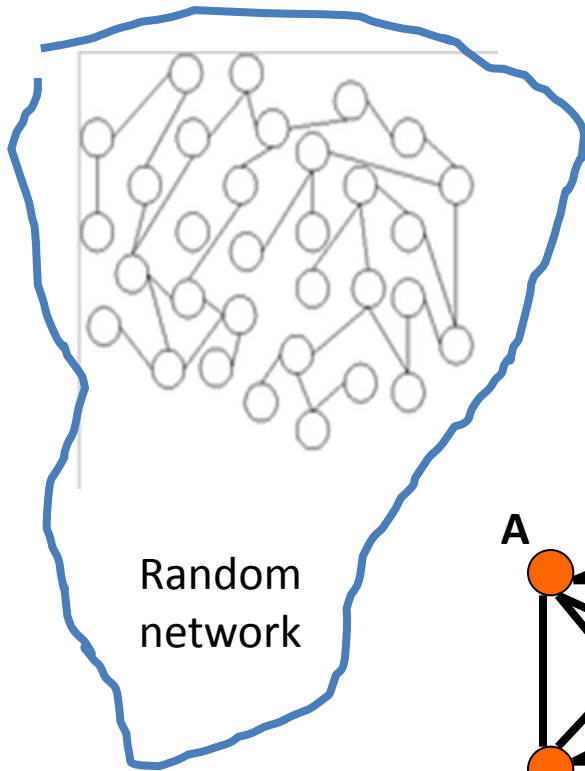
# central limit theorem (CLT)

**The central limit theorem (CLT)** states that a set of sample drawn from a population that May or MAY NOT be normally distributed

- The SAMPLE mean of a sufficiently large number of independent random SAMPLES, each with a well-defined mean and well-defined variance, will be approximately normally distributed.
- The approximation to a normal distribution gets closer and closer as the number of samples increases.
- The variance of the sample distribution of the sample means gets smaller as the number of samples increases.

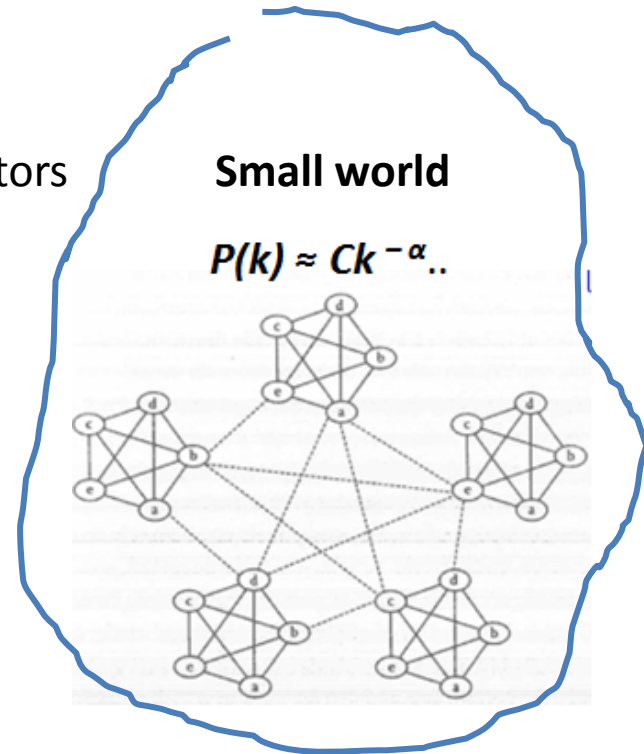
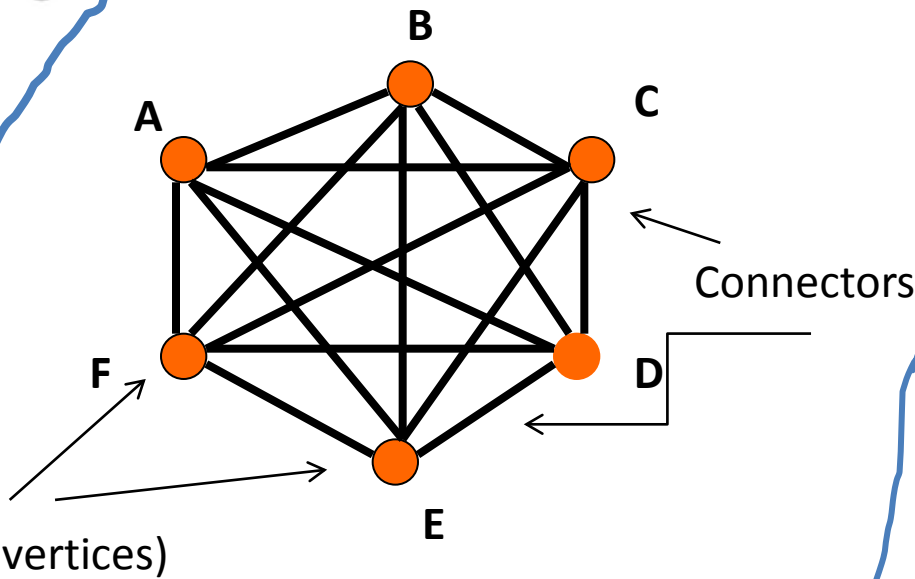
**ALL PART OF CULTURE  
BUT WHAT ASPECTS OF  
CULTURE GENERALLY  
ARE APPLICABLE TO SME IN  
TELECOMS AND IN FINANCE**





Random network

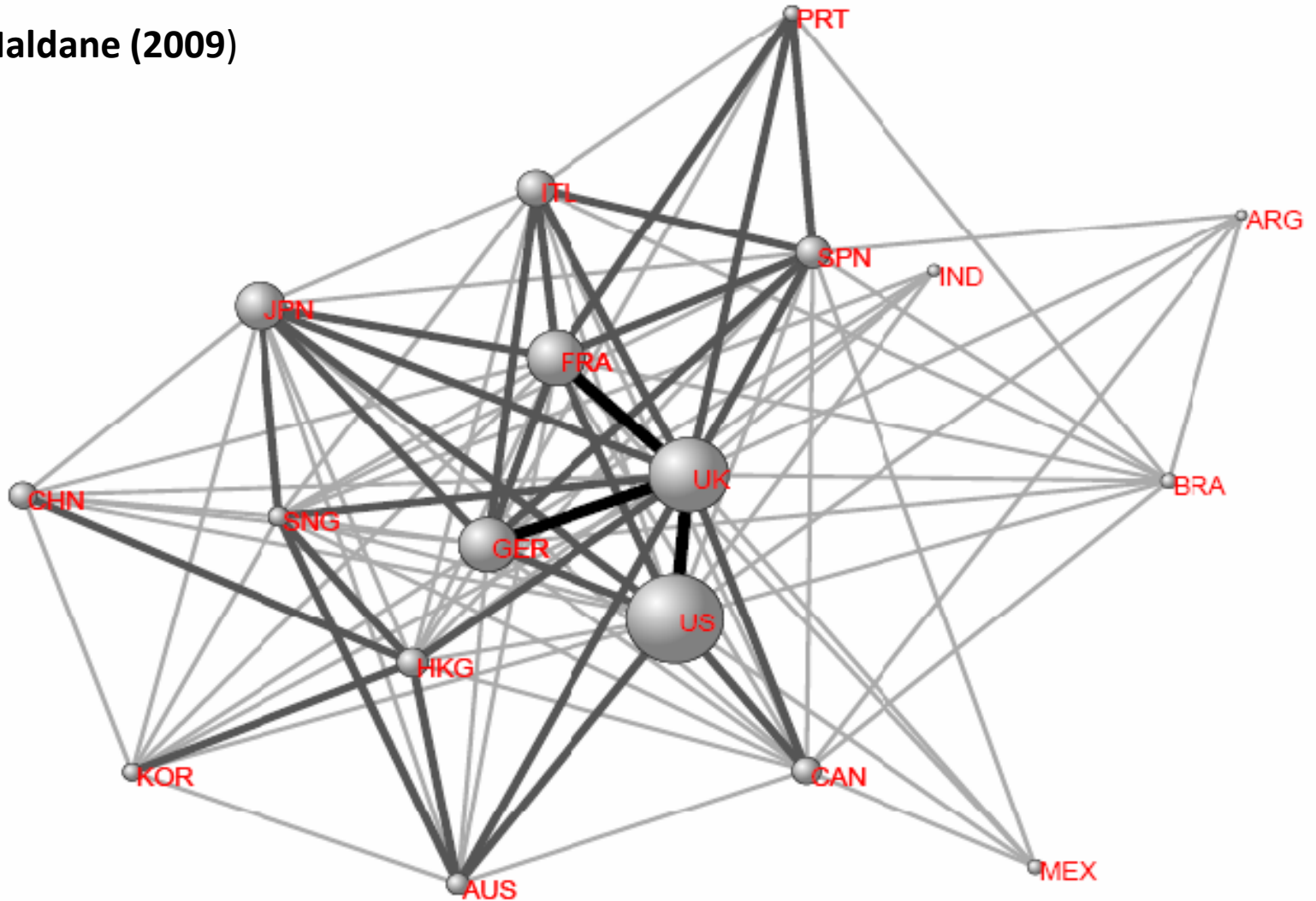
Let A,B, C,.....,E....  
 Be activities in the value/supply chain  
 Similarly for random and small world networks



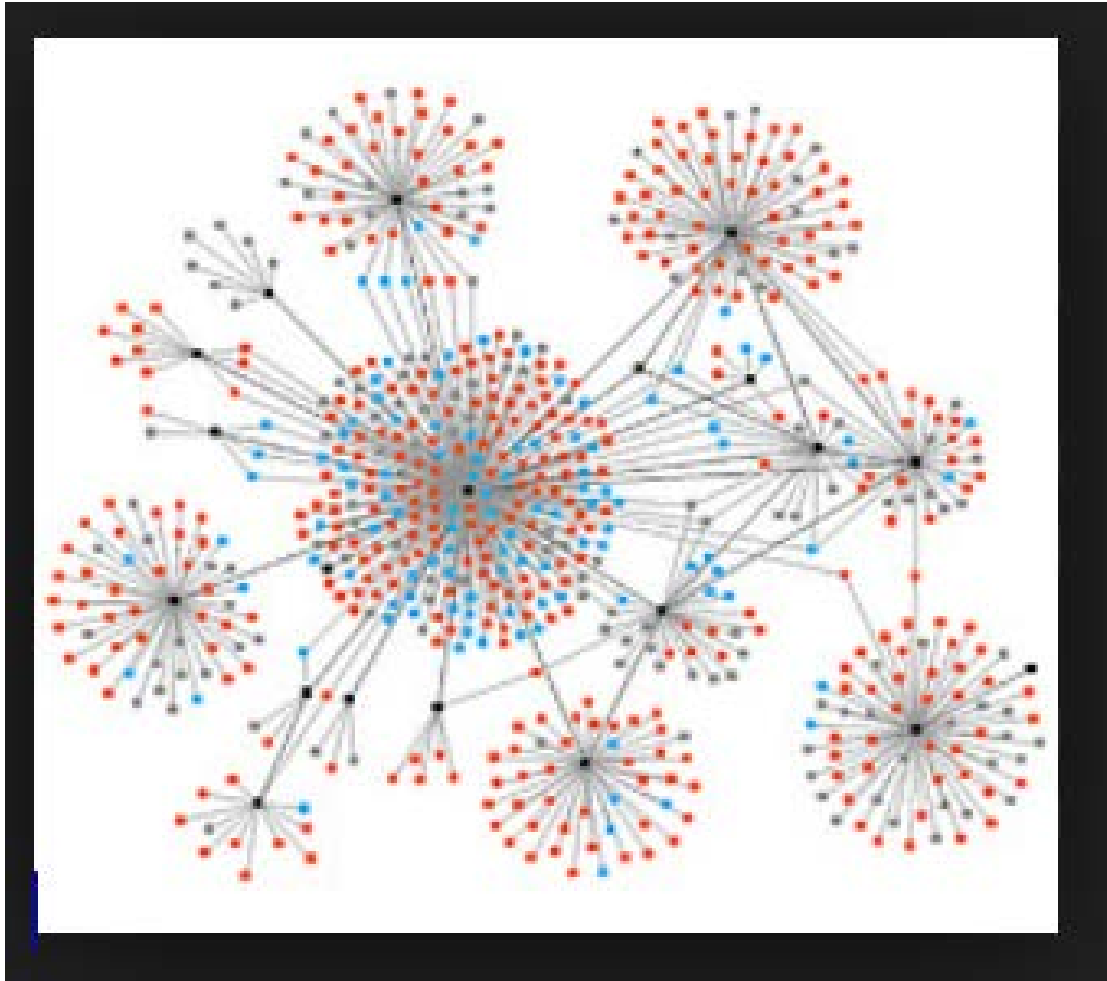
# Chart 3: Global Financial Network: 2005

2005

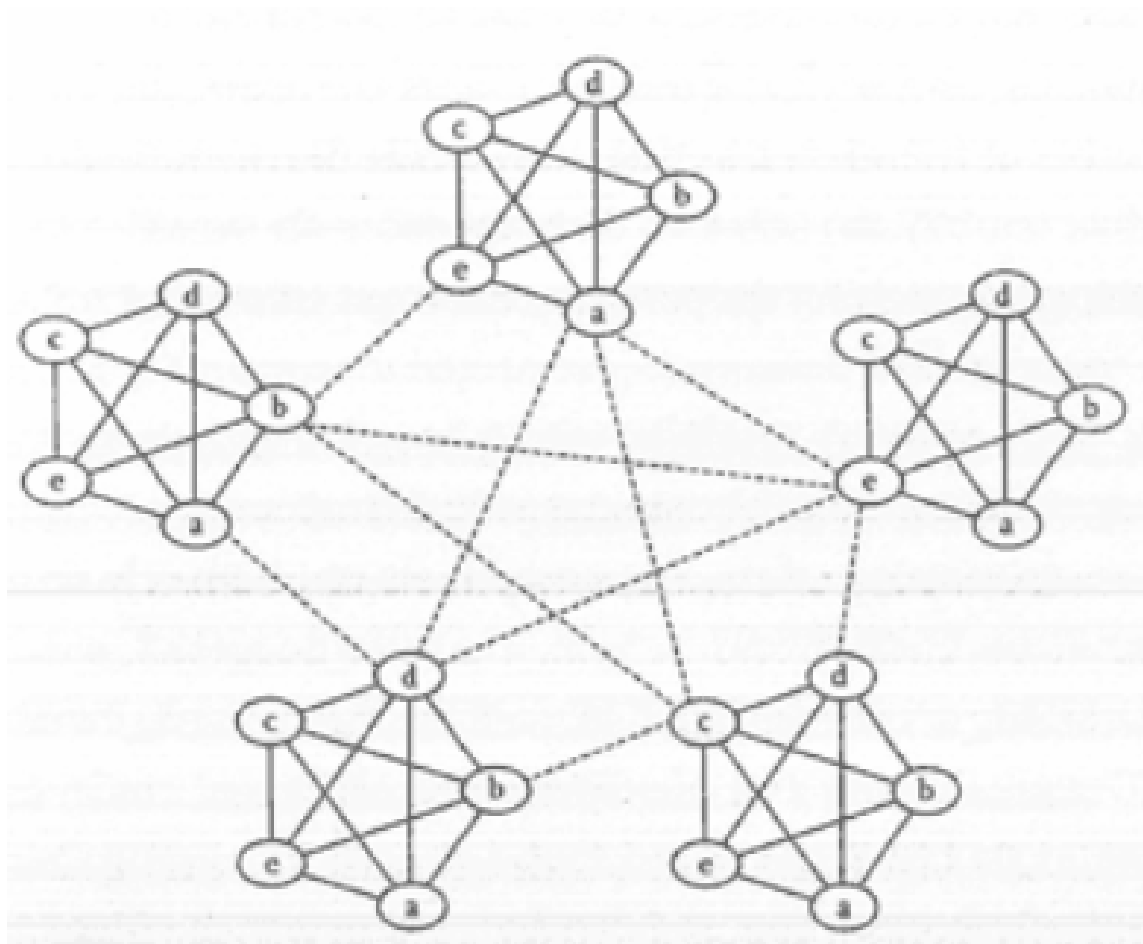
Haldane (2009)



Key: — 0.003-0.03    — 0.03-0.2    — >0.2

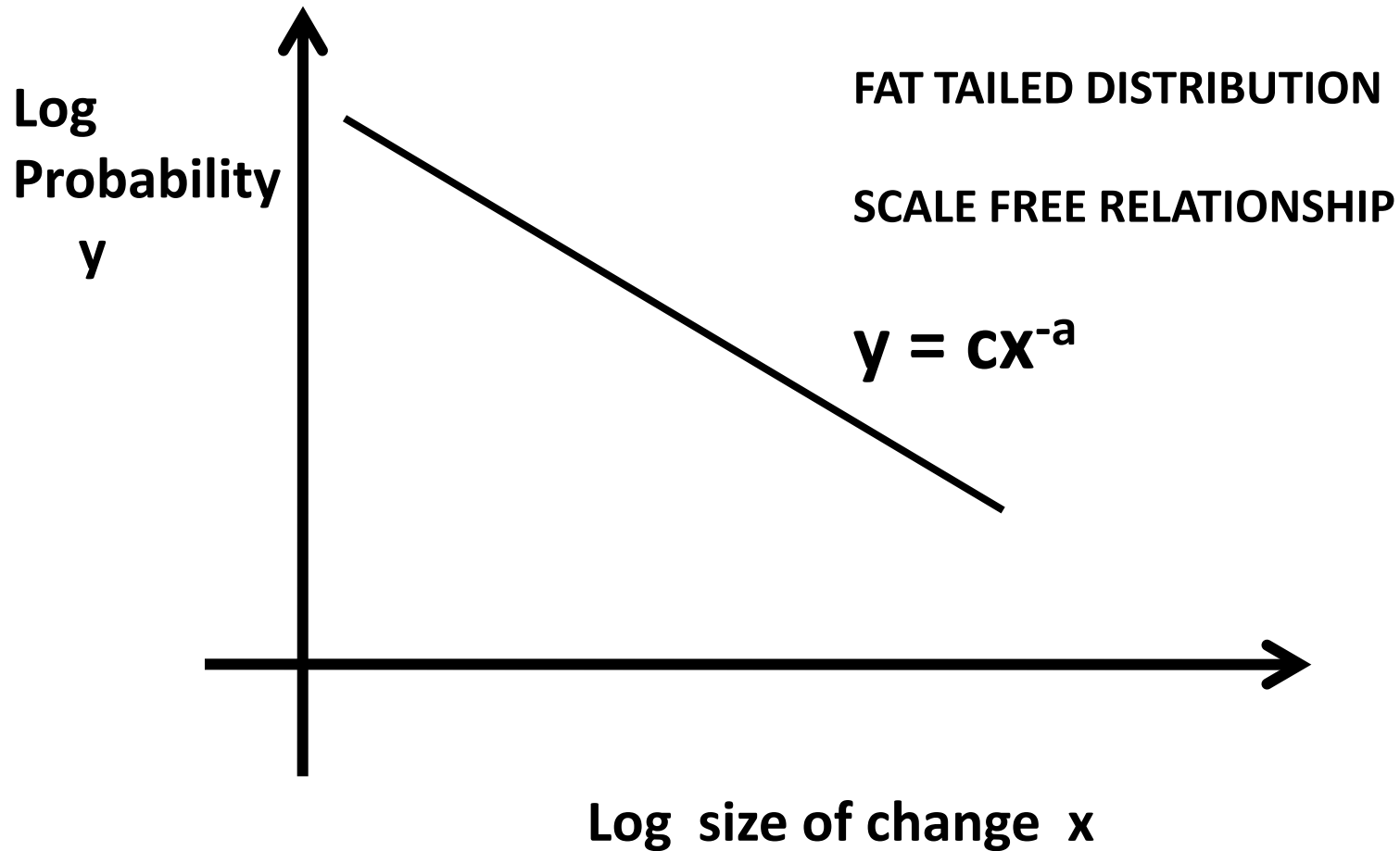


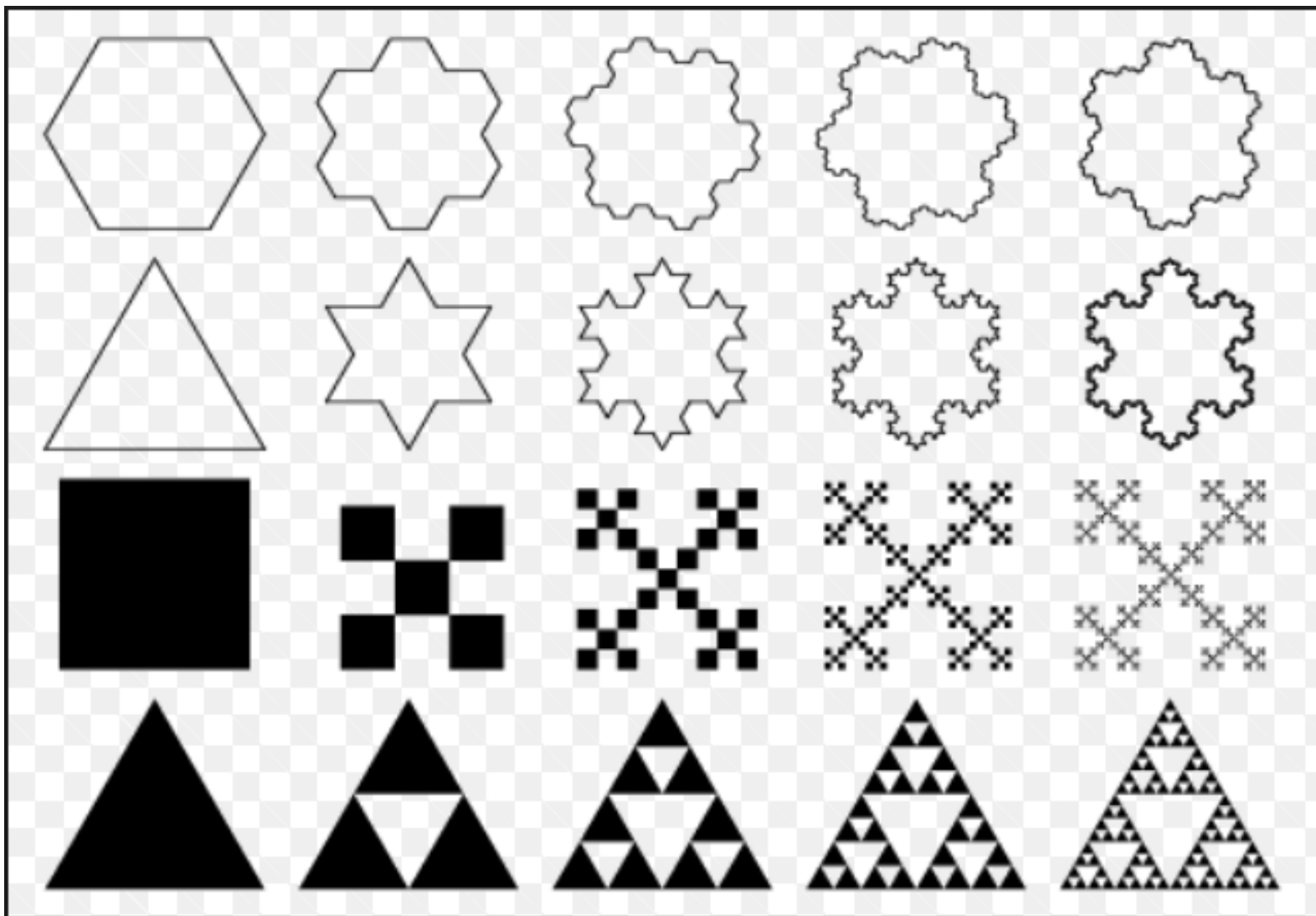




$$y = cx^{-a}$$

# Change on all scales is possible

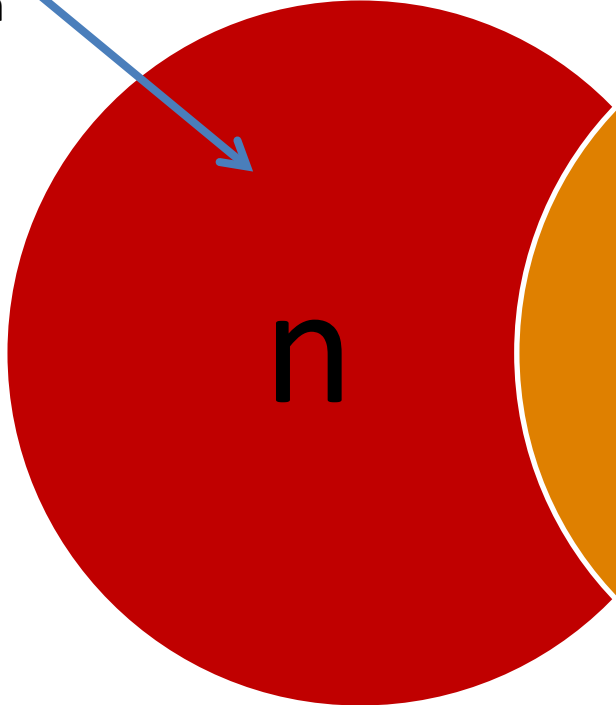
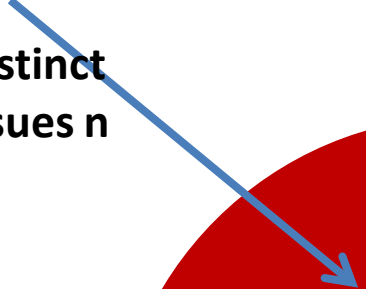






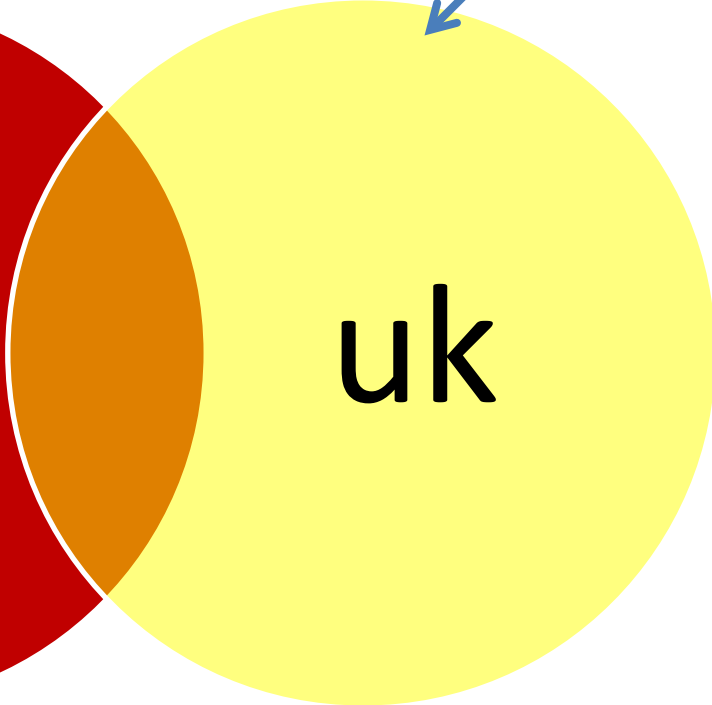
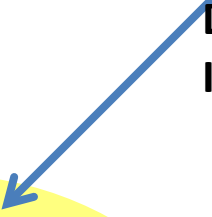
**IDENTIFY**

**Distinct  
Issues n**



**IDENTIFY**

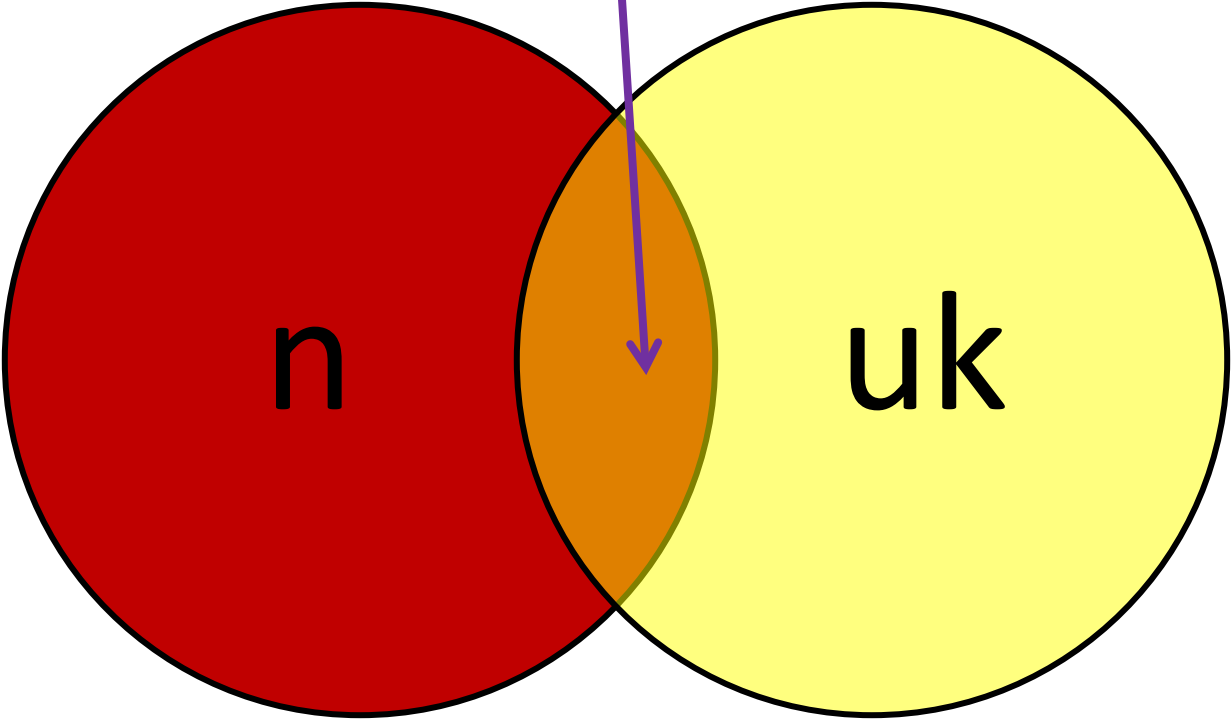
**Distinct  
Issues uk**



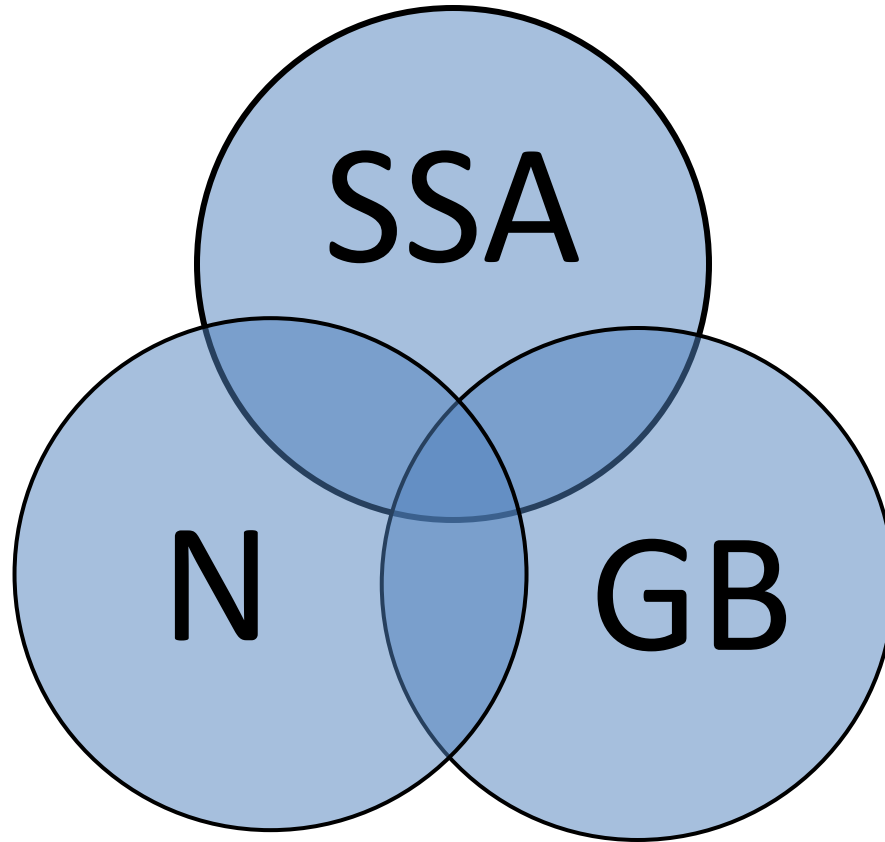
**n**

**uk**

**OVERLAPPING  
ISSUES**



SSS  $\cup$  N  $\cup$  GB



$\cup$  = UNION

MDSO MOST SIMILAR OUTCOME

